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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,756	02/23/2004	Shinichi Yamada	K-2147	7655

7590 04/27/2006  
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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/782,756

Applicant(s)

YAMADA ET AL.

Examiner

Tran N. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-4, 7-20, 28-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-3, 7-9, 20 and 28-31 is/are rejected.
- 7) ☐ Claim(s) 4 and 10-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore the following:

*(a) the stator iron core is provided with a skew inclined at a predetermined angle with respect to a rotating direction of said rotor, as in claim 20, and*

*(b) a pair of said rotors are provided at a left and a right with said stator therebetween,*  
as in claim 29

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-3, 7, 9, 28-29, 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Varga (US 1959578)** in view of **Suzuki et al (US 6177751)**.

**Varga** discloses an axial gap electronic motor (fig 1) including a stator and a rotor each formed approximately in a disc shape and disposed opposing at a same rotary shaft with a predetermined gap, and the stator core has a plurality of pole members (61) annularly connected (figs 2a-2c).

**Varga**, however, does not disclose that the stator comprises each of said pole members comprise an insulator, i.e. bobbin, having left and right flanges for winding coils and having a connecting means for connecting adjacent pole members.

**Suzuki**, however, teaches that for the purpose of providing an improved iron core assembly are capable of inhibiting a possible increase in the magnetic resistance and a possible occurrence of an eddy current so as to obtain improved magnetic performance, thereby ensuring improved rigidity and increased mechanical precision for the iron core assembly, an iron core comprises a plurality of pole members (34) annularly connected, and each of said pole members comprises an insulation bobbin (36) having left and right flanges for winding and the bobbin also is provided with connecting means (41, 43, 45 of figs 8-9) for connecting adjacent pole members, and the bobbin

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having connecting wire supporting member (40) integrally provided in the flange for supporting a connecting wire, also resin (58) flowed through passes (5) for further integrally connected the poles together and provided as part of the insulator.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator of the motor by providing the stator with the stator core and insulator features, as taught by Suzuki. Doing so would improve the stator structure and magnetic characteristic for enhancing mechanical precision as well as magnetic performance of the motor.

**Regarding claim 29, Varga** discloses a rotor is sandwiched between two stators. However, those skilled in the art would understand that it would have been obvious to one having ordinary skill in the art at the time the invention was made to redesign the motor so that a stator is sandwiched between two rotors. This is obvious because a double axial-gap motor including a stator between two rotors, each formed in a disc shape and disposed opposing at a same rotary shaft is well known in the art. Such motor would delivery more output torque. Furthermore, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. This rearranging part of an invention involves only routine skill in the art (*In re Japikse*, 86 USPQ 70) since one of ordinary skill in the art would have the necessary mechanical skill to make simple reversals of positions of mechanical parts without an express teaching in a reference (*In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

2. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Varga** and **Suzuki**, as applied in the base claim, and further in view of **Hsu (US 6573632)**

The combination of Varga and Suzuki discloses the claimed invention, except for the limitations of the bobbin having two separate divided parts sandwiching the pole core there in between.

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**Hsu**, however, teaches a bobbin have such features (figs 5c-5d) for the purpose of facilitate the pole inserting within the bobbin.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator of the motor by providing the stator with the bobbin having two separate divided parts sandwiching the pole core there in between, as taught by Hsu. Doing so would facilitate the assembling process of the pole within the bobbins and provide a snugly fit thereof.

3. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Varga** and **Suzuki**, as applied in the base claim, and further in view of **Kliman et al (US 6445105)**

The combination of Varga and Suzuki discloses the claimed invention, except for the limitations of the stator core poles are skewed at an angle respect to the rotary axis.

**Kliman**, however, teaching a magnetic core poles are skewed at an angle respect to the rotary axis (fig 18). Also, rotor's poles or stator's poles or both thereof are skewed at an angle respect to the rotary axis are well known in the art. Such angularly skewed poles would reduce cogging torque and increase efficiency of the motor.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator of the motor by providing the stator with poles are skewed at an angle respect to the rotary axis, as taught by Kliman. Doing so would reduce cogging torque and increase efficiency of the motor.

***Allowable Subject Matter***

**claims 4 and 10-19** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

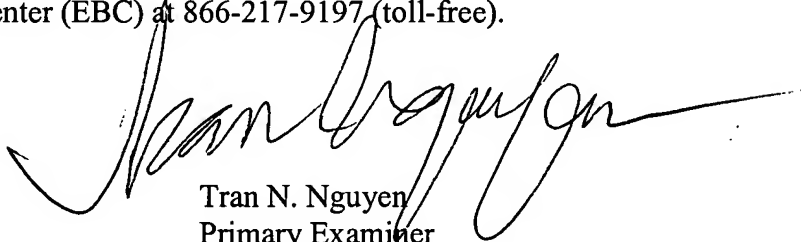
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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tran N. Nguyen  
Primary Examiner  
Art Unit 2834